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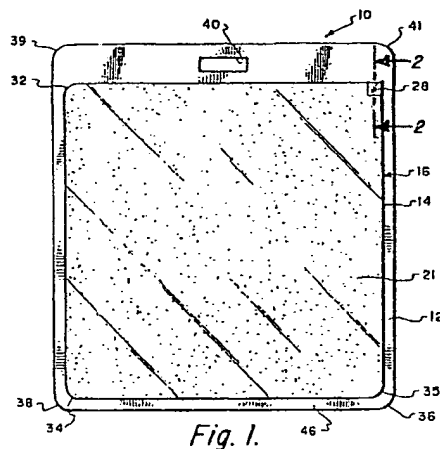
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(54) **Athletic shoe dewaxing mat.**

(57) Athletic shoes are dewaxed without transferring any adhesive to the surface of the shoes by placing a portable mat having a plurality of peelable dewaxing sheets adjacent the waxed playing surface such as a basketball court and stepping on the top adhesive surface of the uppermost peelable sheet to transfer virtually all the dirt and wax from the shoe to the surface of the sheet.



Description

ATHLETIC SHOE DEWAXING MAT

Technical Field

The present invention relates to a mat for removing wax from the bottom surface of an athletic shoe and, more particularly, this invention relates to a portable mat unit in which a pad of peelable shoe dewaxing sheets can be placed adjacent a waxed, hardwood athletic playing floor, such as a basketball court.

Background Art

Many athletic events are played on waxed surfaces, usually waxed strips or blocks of hardwood. The most prominent sport using hardwood floors is basketball. One of the strategies of a player during any offensive possession of the basketball is to avoid the defender so that the offensive player has an unobstructed shot at the basket. This is accomplished by deception, speed and by set plays in which the defender is blocked or picked by another offensive player.

One way to gain a step on the defender is to fake going one direction and then quickly move in the other direction. This requires planting the athletic shoe on the surface of the court, shifting the hips and/or shoulders in one direction and then transferring weight and quickly moving in the other direction. This fake and cut move can be used whether the player is dribbling or simply moving without the basketball. Reliable ability to stop is also important, since that allows the athlete to position himself in an advantageous location of the court and also avoids a violation of the rules. If the player takes excessive steps or moves his planted or pivot foot during possession of the basketball, this results in an infraction of the rules causing loss of possession of the ball -- a costly turnover.

Reliable traction will not only increase performance of the player during execution of a cut or quick stopping maneuver, it will also increase the athlete's mental attitude. Since the athlete knows he or she can reliably cut and stop, the athlete will be less tentative during play of the game.

Moreover, there are many situations where slipping of the planted foot can result in serious injury to the athlete. Athletes are moving at high speed. They apply large amounts of force and torque to their ankles and knees during shifting of their weight during cutting or quick stopping. If their feet slip, they can hyperextend a tendon or ligament or even cause greater injury such as a cartilage or muscle tear or crack or break a bone if they fall. Injuries to other areas of the body can also occur during slipping of a leg on the floor, such as a groin pull or tearing or straining a calf or thigh muscle or associated tendons or ligaments.

Reliable traction is also necessary during scrambles for loose balls, in order to avoid slipping and turning an ankle or knee. Another injury prone situation is rebounding. Athletes weighing from 150 to 300 pounds are jostling, pushing, stretching and

jumping. They sometimes have to lean past another body to position themselves to reach the ball. They sometimes land off-balance with pressure on their upper or lower torso from another player's body. It is critical to be able to land and plant the sole of the athletic shoe reliably on the court to stabilize the body and avoid injury by falling, slipping or sliding.

In order to increase mobility, athletic shoe manufacturers have spent decades of effort trying to improve traction of shoes so that an athlete can start, stop and cut more reliably. They have experimented with different soft elastomeric materials for the sole and have provided composite sole designs and designs containing suction cups and/or soft or hard inserts for this purpose.

However, the playing courts are cleaned and waxed to preserve and smooth the wood or vinyl surfaces. Wax transfers to the surface of the shoe and the shoe becomes slippery after a period of play. Many arenas are used every night for different uses such as different sports, e.g. indoor tennis, hockey, music concerts, religious assemblies and the like. The court surface may be covered during these events. It is cleaned by mopping and waxed, if necessary, when it is uncovered for athletic use.

Athletes are quite aware of the wax and dirt build up on their shoes. They can feel the effect of the wax layer as the game progresses. It is quite common to observe athletes wiping the bottom of their shoes with towels on the sidelines or wiping the bottom of the shoes with their hands during short breaks while on the court such as when on the foul line. Two well-known players who constantly wipe their shoes with their hands are Michael Cooper of the Los Angeles Lakers and Larry Bird of the Boston Celtics. Both of these players are excellent defensive players, who must make the same cuts and stops in order to stay close to a defender to be in position to block or affect a shot on the basket. Defensive players rely on sure footing in order to make cuts and stops in order to defend. Other defensive moves requiring quick starts, stops and cuts are positioning during stealing a dribble or a pass. Furthermore, if a defensive player can get to a location on the court and stabilize his feet before an offensive player enters the location and makes contact with the defense's body, then the offensive player will be charged with a charging violation resulting in loss of possession and in some instances in awarding a penalty shot on basket to the opposing team.

Absence of sliding and slipping is also required during practice since injuries can also occur while making the same starting, stopping or cutting maneuvers. Other sports played on waxed, hardwood floors are fencing, racketball, handball, squash, volleyball, bicycle velodrome and track. Long distance running on a track presents special problems since the runner cannot stop to wipe the soles of his shoes with a towel or with his hand. Many indoor runners use a spike-type of shoe for traction. A spiked shoe is a lower performance shoe

than a flat soled shoe and the rubber or composition spikes abrade and dent the track requiring periodic replacement of the track area of the indoor sports arena.

Shoe cleaning is required before entering clean rooms used to manufacture electronic devices since dust impurities brought into the room on the soles of shoes can contaminate the processing of the crystal or the manufacture of semi-conductors or integrated circuits from the ultrapure crystal. A sheet or stack of the cleaning sheets is adhered to the hallway floor immediately in front of the entrance to the clean room to remove dust contaminants.

D292,054 discloses an ornamental design for a stack of shoe cleaning sheets which is directly adhered to the floor by a layer of adhesive on the bottom surface of a thick but flexible backing sheet. Each sheet has a surface layer of adhesive designed to adhere to dirt or dust on the soles of shoes. The mat is designed for installation in a single location. The stack must have a low profile to avoid tripping and so that wheels of carts can roll on the sheet for cleaning.

This type of product would not be considered useful for athletic teams. A team manager would not permit anyone to apply a layer of adhesive adjacent to an athletic playing surface or court or floor for the fear of damaging the finish or leaving a residue. Athletes would be hesitant to use such a product for the fear of transferring some residue to their shoes. The shoe could then grab or stick to the floor causing serious injury to the athlete. An athletic team plays at more than one location and must share the home floor with other users. They could not permanently install a shoe cleaning mat adjacent the court since it would interfere with other uses of the athletic arenas.

Statement of the Invention

A portable mat which has a surface capable of selectively removing wax and dirt from the soles of athletic shoes is provided in accordance with the invention. The mat is a self-contained unit which is positioned on the floor in a location where the player will have ready access whenever there is an interruption in play, preferably adjacent the playing surface. In fencing, the mat is placed between fencing strips. For table tennis the mat can be placed between tables so that it can be used between points or between games. In volleyball, the mat can be placed close to the service corner so that each player can use the mat as he rotates to the service position. In other sports the mat can be used during interruption of play such as after time outs, between periods, foul shots, between games or matches. Any player coming off the bench has an opportunity to use the mat.

The athletic shoe dewaxing mat of the invention is designed specifically for use by participants of sports played on hardwood/waxed floors. The mat's main purpose is to improve traction on the court by removing practically all the dirt and wax build-up on sneaker soles. This is accomplished without any trace of adhesive being left on the sneaker. The act of cleaning the sneaker soles is reduced to about 3

seconds just by stepping on the mat.

By using the mat, the players gain a sense of confidence which allows them to make more aggressive moves -which may not otherwise have been attempted for fear of slipping.

The athletic mat of the invention includes a rigid backing member preferably having a roughened lower surface so that it does not slide when placed on hardwood floors. The upper surface receives at least one sheet having a non-transferring adhesive surface capable of removing substantially all the wax and dirt on the bottom surface of an athletic shoe without transferring any adhesive to the shoe. The adhesive surface is preferably provided as a thin layer of adhesive applied to a thin sheet of plastic adhered to the base with a second layer of non-transferring adhesive. The second layer must have a higher peel strength than the first layer. The preferred form of the mat includes a stack of peelable sheets that can be removed as necessary.

These and many other features and attendant advantages of the invention will become apparent as the invention becomes better understood by reference to the following detailed description when considered in conjunction with the accompanying drawings.

Brief Description of the Drawings

Figure 1 is a top view in elevation of the athletic shoe dewaxing mat of the invention;

Figure 2 is a view in section taken along line 2-2 of Figure 1;

Figure 3 is a schematic view showing the mat in use;

Figure 4 is a schematic view of the mat after use; and

Figure 5 is a plan view showing the combination of the mat of the invention and a basketball court.

Detailed Description of the Invention

Referring now to Figures 1 and 2, the athletic shoe dewaxing mat 10 includes a base 12 on which is supported at least one sheet 14 having an adhesive surface layer 21. Preferably a stack 16 of sheets 14 is provided, each peelable from the adjacent sheet. Optionally, the stack 16 can be provided with a protective top cover sheet, not shown, and a bottom protective cover sheet, not shown.

The stack 16 of sheets can be provided as a separate replaceable unit. The lower most or backing sheet 22 is usually thicker and stronger than the peelable sheets 14 and has a layer 24 of medium peel strength adhesive on its lower surface and a layer 26 of higher peel strength adhesive applied to the top surface of the backing sheet. The adhesive layer 26 has higher peel strength than the layer 24 so that peelable sheets 14 preferentially separates from each other rather than pull the backing sheet 22 off the base 12. The adhesive layer 26 has higher tear strength than its peel strength so that it does not tear and transfer to surfaces of athletic shoes. The peel strength of the layer 21 on the sheets 14 is lower than that of the adhesive layer 26 on top of the

backing sheet or the lower layer 24. The last dewaxing sheet 29 is permanently adhered to the backing sheet 22 by the adhesive layer 26 and is removed as an assembly from the base 12 with the backing sheet 22.

Each dewaxing sheet 14 also contains a thin layer 21 of dewaxing adhesive. A small corner area of each sheet can be void of adhesive so that a tab 28 is formed to easily start the peeling of the sheet and to avoid transferring adhesive to the fingers of the player or coaching staff. The backing sheet 22 can also have a corner tab 30 without any adhesive. The tab areas are preferably colored so that they are more visible. Accidental removal of multiple sheets occurs sometimes since the sheets are thin and transparent and the corners may stick together. This can be avoided by alternating the colors of the tabs 28. The sheets preferably have rounded corners 32, 34, 35 to avoid injury to the soft shoes and feet of the players.

The base 12 also has rounded corners 36, 38, 39, 41. A hand hold aperture 40 is provided in the base 12. Since the base 12 is placed on slippery tile or hardwood floors, the bottom surface is covered with a layer 42 of soft, anchoring material such as rubber, preferably grooved with a plurality of triangular ridges 44.

The base 12 is preferably formed from a hard, heavy material such as water-resistant particle board such as 1/4 inch thick Masonite. The base is usually slightly larger than the mat, e.g. a 28" x 29" base is used with a 26" x 26" mat or an 18" x 19" base is used with a 15" x 18" mat. The latter is suitable for use at away games or can be used by an individual rather than by a team. The backing sheet 22 can be a 3-5 mil thick film such as vinyl. A thicker backing sheet also prevents curling or wrinkling when applying the backing sheet 22 to the base 12.

The peel strength of the layer 24 adhering the backing sheet to the base is generally in the range of 25-50 oz/in. These characteristics can be provided by a pressure sensitive adhesive, suitably an acrylic-based adhesive film. For example, a film having a thickness of 25 microns provides a peel strength of 44 oz/in. or stainless steel. This film possesses a controlled level of clean removability from the base with sufficient adhesion to avoid edge lifting.

The adhesive layer 26 on top of the backing sheet serves to adhere the mat to the backing sheet. The peel strength is at least 20 oz/in. higher than that of the lower layer so that the lower layer preferentially separates from the base. A representative adhesive that can be used is a pressure sensitive, cold temperature thermoset acrylic copolymer having a peel strength of 90 oz/in. in a layer 25 microns thick.

The peelable sheets are preferably a polyethylene film having a thickness from 1 to 3, generally a 2 mil thick sheet of low density polyethylene. Dewaxing properties are provided by an adhesive film 21 having lower peel strength than the adhesive films on the backing sheet. The dewaxing adhesive can be a water-based, extremely inert acrylic film, usually having a thickness of about 25 microns.

The athletic shoe dewaxing mat is utilized by

removing the protective cover sheet from the backing sheet 22 and applying the layer 24 of adhesive to the top surface 46 of the base 12. The stack 16 should be applied by adhering one end and pressing the stack down carefully towards the other end to avoid air bubbles. Once the stack 16 is firmly adhered to the base, the top cover sheet is removed. The mat is now ready for use.

Referring now to Figure 3, the mat is used by having a player step with both shoes 41, 43 on the adhesive layer 21 on the top sheet 14. Referring now to Figure 4, two areas of the mat will selectively contain discrete layers 47, 49 of wax and dirt in the shape of imprints of the bottom surfaces of the shoes 41, 43. The layers 47, 49 are transferred from the bottom surfaces 37, 39 of the shoes 41, 43 of the player.

Referring now to Figure 5, the mat 10 of the invention is illustrated as placed on the out-of-bounds surface 50 of a basketball court 52 adjacent the mid-court line 56 in front of the official scorer's table 58. This is the usual location of a basketball player before he enters the playing surface 60. The player can stand on the mat 10 immediately before entering the game. This location is also convenient to other players since it is midway between the benches 62, 64 and the players can walk onto the mat 10 on their trip back onto the court 52 after time outs, between quarters, etc. This removes practically all the wax and dirt build up on the player's shoes improving traction. It only takes a few seconds to clean the sole to its original condition when new.

The mat of the invention has been tested by a professional basketball team. The players are enthusiastic about the improved traction provided by use of the mat and no longer clean their shoes with their hands. The opposing teams have tried the mat and also acknowledge its advantage in removing wax from athletic shoes.

A peelable dewaxing sheet is used until it is covered with too much wax to be useful. It is simply removed by lifting the colored tab to expose a fresh dewaxing sheet. A sheet will usually last about two quarters of a basketball game in normal conditions. Sheets can be changed every quarter if the floor is particularly waxy or dirty.

It is to be realized that only preferred embodiments of the invention have been described and that numerous substitutions, modifications and alterations are permissible without departing from the spirit and scope of the invention as defined in the following claims.

Claims

1. A portable mat for removing the wax and dirt from the sole of an athletic shoe comprising in combination:

a stiff, flat base member having an area for receiving a shoe dewaxing sheet; and
at least one shoe dewaxing sheet adhered to said area, said sheet having a first top adhesive surface capable of removing wax and dirt from

the bottom surface of athletic shoes without transferring adhesive to the shoe surface when the wearer steps on the adhesive surface of the sheet.

2. A mat according to Claim 1 in which the bottom surface of the base member contains an anti-slip material.

3. A mat according to Claim 2 in which the anti-slip material is a layer of elastomer.

4. A mat according to Claim 3 in which the elastomer is a hard, black rubber and the layer includes a plurality of parallel ridges for anchoring the base member in place.

5. A mat according to Claim 4 in which the base member is in the shape of a rectangle having two front corners and two rear corners.

6. A mat according to Claim 5 in which the front corners are rounded.

7. A mat according to Claim 5 in which the base member has an aperture adjacent an edge thereof adapted to receive a human hand as a carrying handle.

8. A mat according to Claim 1 in which the sheet is provided as a plurality of sheets in a stack peelable from each other.

9. A mat according to Claim 8 in which the lowermost sheet is a backing sheet thicker than the peelable dewaxing sheets and a top layer of adhesive on the backing sheet permanently adhering the backing sheet to the lowermost peelable sheet and a second layer of adhesive on the bottom surface of the backing sheet for

removably adhering the backing sheet to the base.

10. A mat according to Claim 9 in which the peel strength of the adhesive layer on the top surface of the dewaxing sheets is less than the peel strength of the second layer of adhesive on the bottom surface of the backing sheet.

11. A method of dewaxing athletic shoes comprising placing the mat defined in Claim 1 adjacent a waxed playing surface; applying the bottom surface of athletic shoes to the top surface of the dewaxing sheet and transferring dirt and wax from said surface to the adhesive surface of the sheet; repeating the above step during the play on the waxed surface; and

removing the portable mat from adjacent the playing surface after the play has terminated.

12. A method according to Claim 11 in which the playing surface is waxed hardwood.

13. A method according to Claim 12 in which the playing surface is a basketball court.

14. A system for dewaxing athletic shoes comprising in combination:

a waxed playing surface defined by a playing court area on the surface and an out-of-bounds areas adjacent the court area; and an athletic shoe dewaxing mat as defined in Claim 1 placed adjacent the court area.

15. A system according to Claim 14 in which the mat contains a peelable stack of dewaxing sheet.

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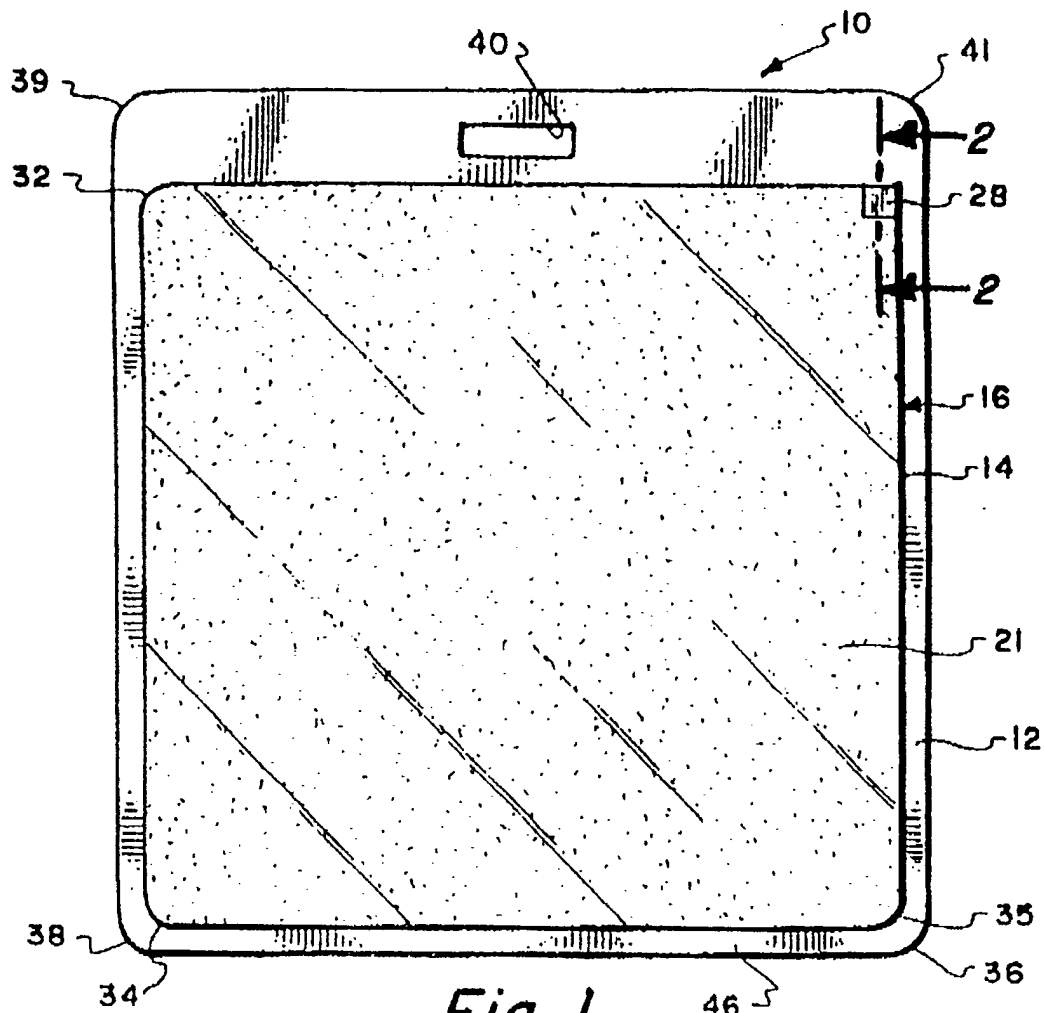


Fig. 1.

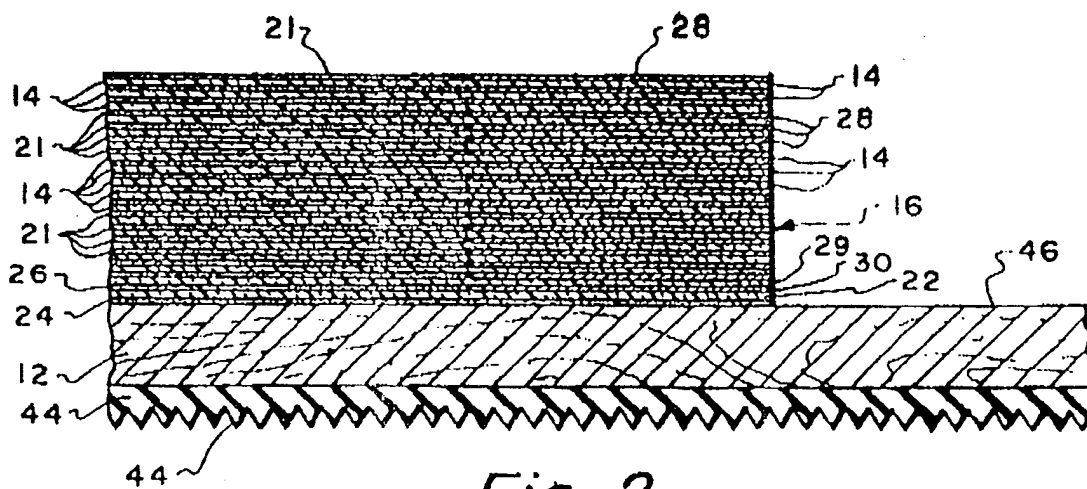


Fig. 2.

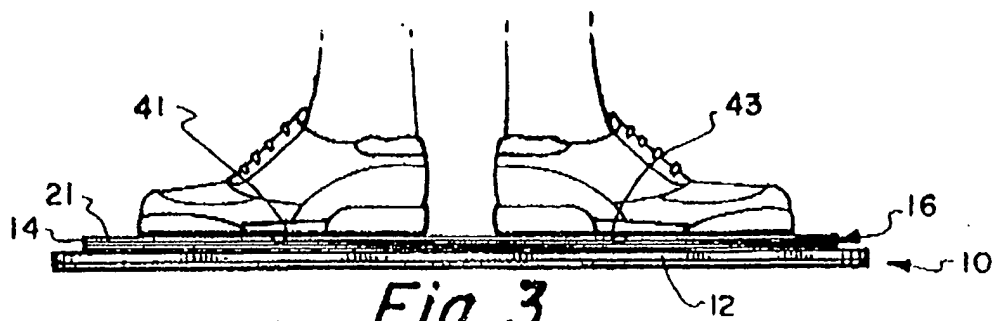


Fig. 3.

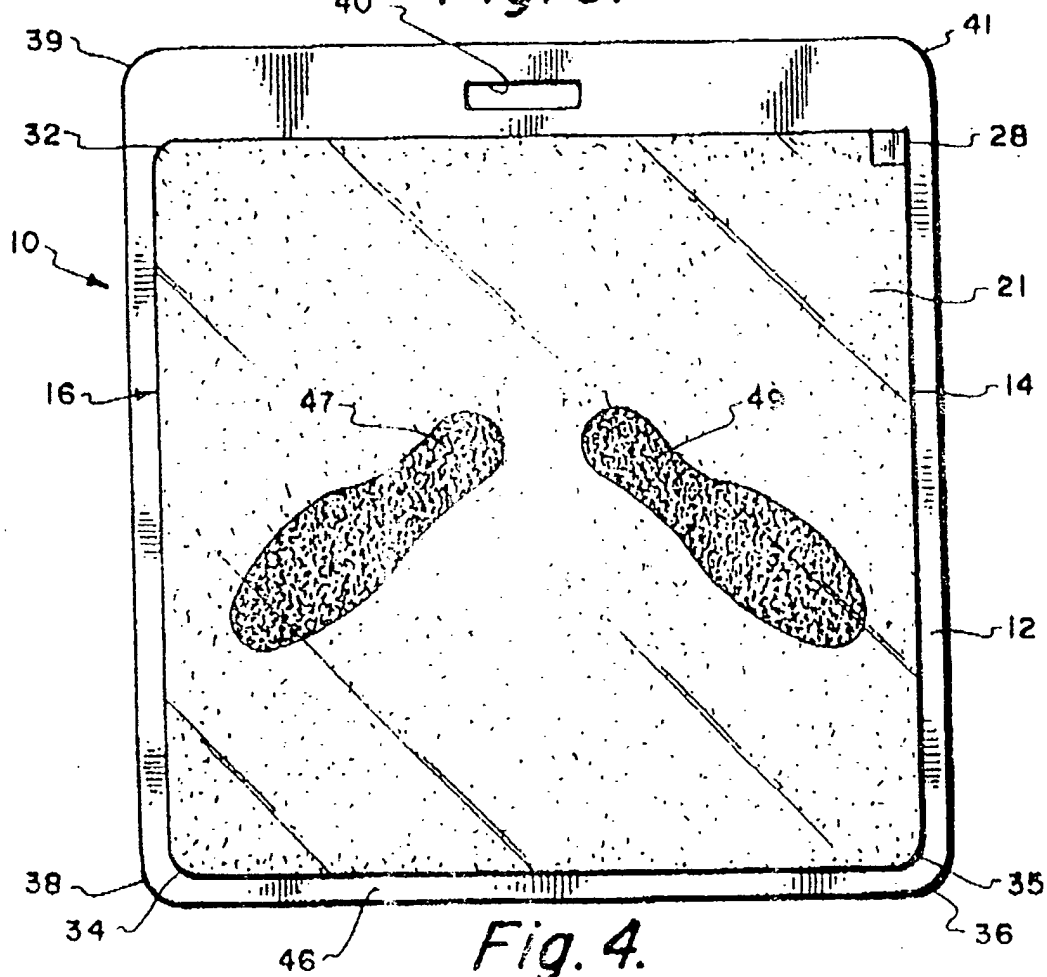


Fig. 4.

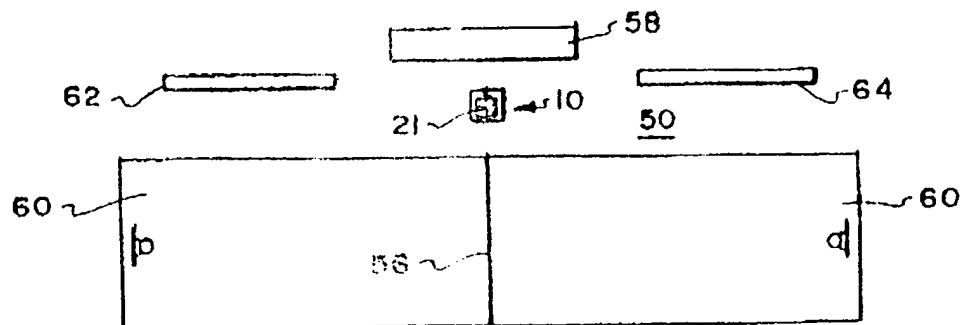


Fig. 5.

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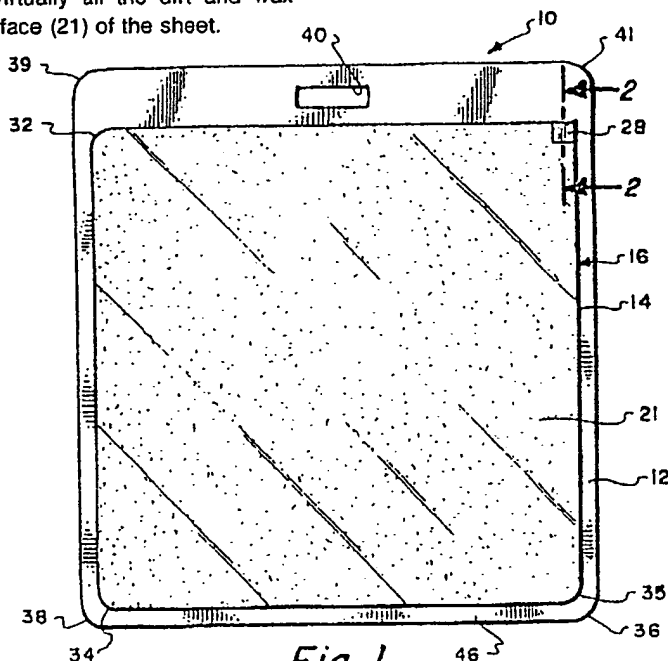


Fig. 1.

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EUROPEAN SEARCH REPORT

Application Number

EP 89 40 2096

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	GB-A-1 340 636 (J. NAPPI) * Page 2, line 32 - page 3, line 6; figures *	1-3,8-10	A 47 L 23/22 A 47 G 27/02
A	DE-A-3 207 165 (BTF) * Page 13, lines 14-34; figure 5 *	2-4	
X	US-A-3 400 421 (J. NAPPI) * Claims; figures *	1	
X	US-A-4 107 811 (G. INSANDE) * Abstrac; figures *	1	
X	US-A-3 717 897 (H.C. AMOS) * Column 1, lines 30-41; figure 3 *	1	
X	* Column 1, lines 30-41; figure 3 *	1	
X	US-A-3 785 102 (H.C. AMOS) * Column 1, line 64 - column 2, line 16; figures 2-4 *	1	
X	ENGINEERING, vol. 123, no. 198, 25th december 1964, page 821; "Tack mats for "clean" areas"	1	TECHNICAL FIELDS SEARCHED (Int. Cl.4)
A	FR-A-2 577 129 (M. PAVAN) * Page 3, lines 24-30; figures *	5-7	A 47 L A 47 G
A	US-A-3 078 490 (K.E. ETCHER) * Column 1, lines 36-40,70-72; figure 2 *	2-4	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 25-01-1990	Examiner VANMOL M.A.J.G.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			